Attorney Docket No. SEL 233

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF APPEALS AND INTERFERENCES

In Re Application of:		)
	Shunpei YAMAZAKI et al.	)
Serial No.:	09/747,731	)
Filed:	December 22, 2000	)
For:	Method Of Manufacturing A Display Device	)
Examiner:	William P. Fletcher, III	)
Art Unit:	1762	)

AMENDED APPEAL BRIEF UNDER 37 C.F.R. 41.37

Mark J. Murphy
Attorney for Appellants

COOK, ALEX, McFARRON, MANZO,
CUMMINGS & MEHLER, LTD.
200 West Adams Street, Suite 2850
Chicago, Illinois 60606
(312) 236-8500

Customer No. 26568

April 18, 2007

TABLE OF CONTENTS

i. STATEMENT OF REAL PARTY IN INTEREST 1

ii. STATEMENT OF RELATED APPEALS AND INTERFERENCES 1

iii. STATUS OF CLAIMS 1

iv. STATUS OF AMENDMENTS 2

v. SUMMARY OF CLAIMED SUBJECT MATTER 2

vi. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL 23

vii. ARGUMENT 26

A. BACKGROUND 26

B. THE REJECTIONS OF THE CLAIMS SHOULD BE REVERSED 27

1. A Prima Facie Case of Obviousness Cannot Be Based On Hindsight Reconstruction 28

2. The Rejection of Independent Claim 20 And The Claims Dependent Thereon Is Improper 29

a. The Rejection Is Based on Improper Hindsight Reconstruction 30

i. The Combination of Arai and Grothe is Improper 31

ii. The Combination of Monk and Arai is Improper 34

b. Evidence Of Nonobviousness Of Claimed Invention 35

c. Conclusion 36

3. The Other Rejections of The Claims Are Similarly Improper 37

C. CONCLUSION 47

viii. CLAIMS APPENDIX 49

ix. EVIDENCE APPENDIX 79

x. RELATED PROCEEDINGS APPENDIX 80

TABLE OF AUTHORITIES

In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993).....28

In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).....28, 31, 34

In re Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1984).....28

In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (fed. Cir. 1984).....28

In re Fritch, 972 F.2d 1260, 1266 23 USPQ2d 1780, 1784 (Fed. Cir. 1992).....28

In re Oetiker, 24 USPQ2d 1443, 1447 (Fed. Cir. 1992).....28

McGinley v. Franklin Sports, Inc., 60 USPQ2d 1001, 1008 (Fed. Cir. 2001).....28

Ecolochem, Inc. v. Southern California Edison Co., 227 F.3d 1361, 56 USPQ2d 1065, 1076 (Fed. Cir. 2000).....31

Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 796 F.2d 443, 230 USPQ 416, 419-420 (Fed. Cir. 1986).....31, 34

APPEAL BRIEF UNDER 37 C.F.R. §41.37

This Brief is in furtherance of the Notice of Appeal filed in this Application Serial No. 09/747,731 on November 6, 2006. A one-month extension of time being submitted herewith.

This appeal is in response to the Final Rejection of August 10, 2006 rejecting all the pending claims.

The claims of the present application are clearly patentable over the cited references, as will be shown *infra*, and Appellants respectfully request the Board to so rule and allow the application.

i. STATEMENT OF REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee: Semiconductor Energy Laboratory Co., Ltd., 398, Hase, Atsugi-shi, Kanagawa-ken 243-0036 Japan.

ii. STATEMENT OF RELATED APPEALS AND INTERFERENCES

To the best of Appellants', Appellants' legal representatives' and Assignee's knowledge, there are no appeals or interferences pending which will affect or be affected by the Board's decision in this appeal.

iii. STATUS OF CLAIMS

Claims 20-22, 37-40, 43-45, 48, 49, 53-176 are pending and rejected. Claims 1-19, 23-36, 41-42, 46-47, 50-52 are canceled. Claims 20-22, 37-40, 43-45, 48, 49, 53-176 are the appealed claims and appear *infra* at p. 49 *et seq*.

iv. STATUS OF AMENDMENTS

No amendment after final has been filed in this application.

v. SUMMARY OF CLAIMED SUBJECT MATTER

In accordance with §41.37(c)(v), Appellants are providing the following concise explanation of the claimed subject matter. Appellants are providing examples of where each claim element is shown or discussed in the specification and drawings of the present application. These citations are merely examples, as the application has further disclosure of these elements throughout the application.

The dependent claims are based, either directly or indirectly, on one of the independent claims, and accordingly, all the elements listed for the respective independent claims, and the support for these elements in the specification and drawings are as mentioned herein. These dependent claims also add additional elements or limitations which are supported in the specification and drawings.

Independent Claim 20 is directed to a method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source **(212)** in a first evaporation chamber **(201; 506(A)) (page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5)**;

providing a second evaporation source **(212)** in a second evaporation chamber **(201; 509(B)) (page 14, lines 8-16; Figs. 2A, 5)** wherein each of the first and second evaporation sources has a first direction and a second direction different from each other **(page 3, lines 22-26)**, each of the first and second evaporation sources **(212)** being longer in the first direction than in the second

direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the first evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the first evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**;

evaporating a first material from said first evaporation source to deposit said first material over the substrate **(page 5, lines 6-10; page 10, lines 4-9)** wherein the relative position of the substrate is repeatedly moved with respect to the first evaporation source during the evaporation of the first material **(page 4, lines 26-27; page 5, lines 1-5; page 10, lines 10-21)** in order that a same portion of the substrate is coated with the first material at least twice **(page 5, lines 2-5; page 5, lines 14-15)**;

transferring the substrate from the first evaporation chamber into the second evaporation chamber after the deposition of the first material **(page 11, lines 11-13; Fig. 5)**;

evaporating a second material from said second evaporation source to deposit said second material over the substrate **(page 10, lines 19-21)** wherein the relative position of the substrate is moved with respect to the second evaporation source during the evaporation of the second material.

Independent Claim 37 is directed to a method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source **(212)** in an evaporation chamber **(201; 506(A))**

(page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5);

providing a second evaporation source **(212)** in a second chamber **(201; 509(B))** **(page 14, lines 8-16; Figs. 2A, 5)** connected to the evaporation chamber wherein each of the first and second evaporation sources has a first direction and a second direction different from each other **(page 3, lines 22-26)**, each of the first and second evaporation sources **(212)** being longer in the first direction than in the second direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the first evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**;

evaporating a first material from said first evaporation source to deposit said first material over the substrate **(page 5, lines 6-10; page 10, lines 4-9)** in the evaporation chamber;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material **(page 11, lines 11-13; Fig. 5)**;

evaporating a second material from said second evaporation source to deposit said second material over the substrate **(page 10, lines 19-21)** in the evaporation chamber; and

repeatedly moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice.

Independent Claim 38 is directed to a method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source **(212)** in an evaporation chamber **(201; 506(A))** **(page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5)**;

providing a second evaporation source **(212)** in a second chamber **(201; 509(B))** **(page 14, lines 8-16; Figs. 2A, 5)** connected to the evaporation chamber wherein each of the first and second evaporation sources has a first direction and a second direction different from each other **(page 3, lines 22-26)**, each of the first and second evaporation sources **(212)** being longer in the first direction than in the second direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the first evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**;

evaporating a first material from said first evaporation source to deposit said first material over the substrate **(page 5, lines 6-10; page 10, lines 4-9)** in the evaporation chamber;

repeatedly moving the relative position of the first evaporation source with respect to the substrate along the second direction during the step of evaporating the first material **(page 4, lines 26-27; page 5, lines 1-5; page 10, lines 10-21)** in order that a same portion of the substrate is coated with the first material at least twice **(page 5, lines 2-5; page 5, lines 14-15)**;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material **(page 11, lines 11-13; Fig. 5)**;

evaporating a second material from said second evaporation source to deposit said second material over the substrate **(page 10, lines 19-21)** in the evaporation chamber; and

repeatedly moving the relative position of the second evaporation source with respect

to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice,

wherein each of the first and second evaporation sources is longer than at least one edge of the substrate **(Fig. 2A)**.

Independent Claim 39 is directed to a method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source **(212)** in an evaporation chamber **(201; 506(A))** **(page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5)**; wherein the first evaporation source comprises a plurality of first evaporation cells arranged along a first direction;

providing a second evaporation source **(212)** in a second chamber **(201; 509(B))** **(page 14, lines 8-16; Figs. 2A, 5)** connected to the evaporation chamber wherein the second evaporation source comprises a plurality of second evaporation cells;

disposing a substrate **(203)** in the evaporation chamber **(page 8, lines 12-17; fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the first evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**;

evaporating a first material from said first evaporation source to deposit said first material over the substrate **(page 5, lines 6-10; page 10, lines 4-9)** in the evaporation chamber;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material **(page 11, lines 11-13; Fig. 5)** so that the

plurality of second evaporation cells are arranged in the first direction;

evaporating a second material from said second evaporation source to deposit said second material over the substrate **(page 10, lines 19-21)** in the evaporation chamber;

repeatedly moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice; and

cleaning an inside of the evaporation chamber **(page 7, lines 3-7)**.

Independent Claim 40 is directed to a method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source **(212)** in an evaporation chamber **(201; 506(A))** **(page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5)**; wherein the first evaporation source comprises a plurality of first evaporation cells arranged along a first direction;

providing a second evaporation source **(212)** in a second chamber **(201; 509(B))** **(page 14, lines 8-16; Figs. 2A, 5)** connected to the evaporation chamber wherein the second evaporation source comprises a plurality of second evaporation cells;

disposing a substrate **(203)** in the evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the first evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**;

evaporating a first material from said first evaporation source to deposit said first

material over the substrate **(page 5, lines 6-10; page 10, lines 4-9)** in the evaporation chamber;

repeatedly moving the relative position of the first evaporation source with respect to the substrate along a second direction during the step of evaporating the first material **(page 4, lines 26-27; page 5, lines 1-5; page 10, lines 10-21)** in order that a same portion of the substrate is coated with the first material at least twice **(page 5, lines 2-5; page 5, lines 14-15)**;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material **(page 11, lines 11-13; Fig. 5)**so that the plurality of second evaporation cells are arranged in the first direction;

evaporating a second material from said second evaporation source to deposit said second material over the substrate **(page 10, lines 19-21)** in the evaporation chamber;

repeatedly moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice; and

cleaning an inside of the evaporation chamber **(page 7, lines 3-7)**,

wherein each of the first and second evaporation sources is longer than at least one edge of the substrate **(Fig. 2A)**.

Independent Claim 54 is directed to a method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source **(212)** in an evaporation chamber **(201; 506(A))** **(page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5)**;

providing a second evaporation source **(212)** in a second chamber **(201; 509(B))** **(page 14, lines 8-16; Figs. 2A, 5)** connected to the evaporation chamber wherein each of the first and second evaporation sources has a first direction and a second direction different from each other **(page 3, lines 22-26)**, each of the first and second evaporation sources **(212)** being longer in the first direction than in the second direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the first evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**;

evaporating a first material from said first evaporation source to deposit said first material over the substrate **(page 5, lines 6-10; page 10, lines 4-9)** in the evaporation chamber;

repeatedly moving the relative position of the first evaporation source with respect to the substrate along the second direction during the step of evaporating the first material **(page 4, lines 26-27; page 5, lines 1-5; page 10, lines 10-21)** in order that a same portion of the substrate is coated with the first material at least twice **(page 5, lines 2-5; page 5, lines 14-15)**;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material **(page 11, lines 11-13; Fig. 5)**;

evaporating a second material from said second evaporation source to deposit said second material over the substrate **(page 10, lines 19-21)** in the evaporation chamber;

repeatedly moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice; and

cleaning an inside of the evaporation chamber **(page 7, lines 3-7)**.

Independent Claim 55 is directed to a method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source **(212)** in an evaporation chamber **(201; 506(A)) (page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5)**;

providing a second evaporation source **(212)** in a second chamber **(201; 509(B)) (page 14, lines 8-16; Figs. 2A, 5)** connected to the evaporation chamber wherein each of the first and second evaporation sources has a first direction and a second direction different from each other **(page 3, lines 22-26)**, each of the first and second evaporation sources **(212)** being longer in the first direction than in the second direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the first evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**;

evaporating a first material from said first evaporation source to deposit said first material over the substrate **(page 5, lines 6-10; page 10, lines 4-9)** in the evaporation chamber;

repeatedly moving the relative position of the first evaporation source with respect to the substrate along the second direction during the step of evaporating the first material **(page 4, lines 26-27; page 5, lines 1-5; page 10, lines 10-21)** in order that a same portion of the substrate is coated with the first material at least twice **(page 5, lines 2-5; page 5, lines 14-15)**;

transferring the second evaporation source from the second chamber into the

evaporation chamber after evaporating the first material **(page 11, lines 11-13; Fig. 5)**;

evaporating a second material from said second evaporation source to deposit said second material over the substrate **(page 10, lines 19-21)** in the evaporation chamber;

repeatedly moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice; and

cleaning an inside of the evaporation chamber **(page 7, lines 3-7)**,

wherein each of the first and second evaporation sources is longer than at least one edge of the substrate **(Fig. 2A)**.

Independent Claim 81 is directed to a method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source **(212)** in a first evaporation chamber **(201; 506(A)) (page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5)**;

providing a second evaporation source **(212)** in a second evaporation chamber **(201; 509(B)) (page 14, lines 8-16; Figs. 2A, 5)** wherein each of the first and second evaporation sources has a first direction and a second direction different from each other **(page 3, lines 22-26)**, each of the first and second evaporation sources **(212)** being longer in the first direction than in the second direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the first evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the first evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**;

evaporating a first material from said first evaporation source to deposit a hole injecting layer over the substrate **(page 5, lines 6-10; page 10, lines 4-9)** wherein the relative position of the substrate is repeatedly moved with respect to the first evaporation source during the evaporation of the first material **(page 4, lines 26-27; page 5, lines 1-5; page 10, lines 10-21)** in order that a same portion of the substrate is coated with the material at least twice **(page 5, lines 2-5; page 5, lines 14-15)**;

transferring the substrate from the first evaporation chamber into the second evaporation chamber after the deposition of the first material **(page 11, lines 11-13; Fig. 5)**; and

evaporating a second material from said second evaporation source to deposit a light emitting layer over the hole injecting layer wherein the relative position of the substrate is moved with respect to the second evaporation source during the evaporation of the second material in the second evaporation chamber.

Independent Claim 85 is directed to a method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source **(212)** in a first evaporation chamber **(201; 506(A)) (page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5)**;

providing a second evaporation source **(212)** in a second evaporation chamber **(201; 509(B)) (page 14, lines 8-16; Figs. 2A, 5)** wherein each of the first and second evaporation sources

has a first direction and a second direction different from each other **(page 3, lines 22-26)**, each of the first and second evaporation sources **(212)** being longer in the first direction than in the second direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the first evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the first evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**;

evaporating a first material from said first evaporation source to deposit a hole injecting layer over the substrate **(page 5, lines 6-10; page 10, lines 4-9)** wherein the relative position of the substrate is repeatedly moved with respect to the first evaporation source during the evaporation of the first material **(page 4, lines 26-27; page 5, lines 1-5; page 10, lines 10-21)** in order that a same portion of the substrate is coated with the material at least twice **(page 5, lines 2-5; page 5, lines 14-15)**;

transferring the substrate from the first evaporation chamber into the second evaporation chamber after the deposition of the first material **(page 11, lines 11-13; Fig. 5)**;

evaporating a second material from said second evaporation source to deposit a light emitting layer over the hole injecting layer wherein the relative position of the substrate is moved with respect to the second evaporation source during the evaporation of the second material;

forming a conducting film by evaporation over the light emitting layer; and

sealing the light emitting layer by sealing material without exposure to the atmosphere.

Independent Claim 89 is directed to a method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source **(212)** and a second evaporation source **(212)** in an evaporation chamber **(201; 506(A); 509(B)) (page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7, 8-16; Figs. 2A-5)**, wherein each of the first and second evaporation sources has a first direction and a second direction different from each other **(page 3, lines 22-26)**, each of the first and second evaporation sources **(212)** being longer in the first direction than in the second direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the first evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**;

evaporating a first material from the first evaporation source to deposit said first material over a first pixel portion of the substrate **(page 5, lines 6-10; page 10, lines 4-9)** in the evaporation chamber;

moving the relative position of the first evaporation source with respect to the substrate along the second direction during the step of evaporating the first material **(page 4, lines 26-27; page 5, lines 1-5; page 10, lines 10-21)**;

moving the mask by one pixel portion **(page 10, lines 14-15)**;

evaporating a second material from said second evaporation source to deposit said second material over a second pixel portion in the evaporation chamber; and

moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material.

Independent Claim 92 is directed to a method of manufacturing an electroluminescence display device comprising:

providing an evaporation source **(212)** in an evaporation chamber **(201; 506(A))** **(page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5)**, wherein the evaporation source has a first direction and a second direction different from each other **(page 3, lines 22-26)**, the evaporation source **(212)** being longer in the first direction than in the second direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**; and

evaporating a material from the evaporation source to form a hole injecting layer over the substrate **(page 5, lines 6-10; page 10, lines 4-9)** wherein the relative position of the substrate is moved with respect to the evaporation source during the evaporation of the material.

Independent Claim 95 is directed to a method of manufacturing an electroluminescence display device comprising:

providing an evaporation source **(212)** in an evaporation chamber **(201; 506(A))** **(page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5)**, wherein

the evaporation source has a first direction and a second direction different from each other **(page 3, lines 22-26)**, the evaporation source **(212)** being longer in the first direction than in the second direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**;

evaporating a material from said the evaporation source to form a light emitting layer over the substrate **(page 5, lines 6-10; page 10, lines 4-9)** wherein the relative position of the substrate is moved with respect to the evaporation source during the evaporation of the material **(pages 5, lines 2-5, 14-15)**.

Independent Claim 98 is directed to a method of manufacturing an electroluminescence display device comprising:

providing an evaporation source **(212)** in an evaporation chamber **(201; 506(A))** **(page 8, line 12; page 9, line 19; page 13, lines 5-7, 9-11; page 14, lines 5-7; Figs. 2A-5)**, wherein the evaporation source has a first direction and a second direction different from each other **(page 3, lines 22-26)**, the evaporation source **(212)** being longer in the first direction than in the second direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

evaporating a material from said evaporation source to form a light emitting layer comprising said material over the substrate wherein the relative position of the substrate is moved

with respect to the evaporation source during the evaporation of the material **(page 5, lines 2-5, 14-15)**.

Independent Claim 169 is directed to a method of manufacturing an electroluminescence display device comprising:

providing an evaporation source **(212)** in an evaporation chamber, wherein the evaporation source has a first direction and a second direction different from each other **(page 3, lines 22-26)**, the evaporation source being longer in the first direction than in the second direction **(page 4, lines 1-4; Fig. 2A)**;

disposing a substrate **(203)** in the evaporation chamber **(page 8, lines 12-17; Fig. 2A)**;

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the evaporation source **(page 8, lines 19-21; page 4, lines 12-15; Figure 2B)**; and

evaporating a material from said the evaporation source to form a light emitting layer over the substrate wherein the relative position of the substrate is moved with respect to the evaporation source during the evaporation of the material **(page 5, lines 2-5, 14-15)**,

wherein the mask has at least a rectangular shaped open portion **(page 8, lines 23-25; Fig. 2A)**, and

wherein a longitudinal direction of open portion is perpendicular to the first direction of the evaporation source.

Claim 21 is dependent on Claim 20 and recites the method further comprising a step of

cleaning an inside of the first and second evaporation chambers, respectively **(page 7, lines 3-7)**.

Claim 22 is dependent on Claim 20 and recites that said first and second evaporation chambers are connected to each other through a conveyor chamber **(501) (page 11, lines 6-7; page 13, lines 7-8; page 14, lines 12-13; Fig. 5)**.

Claim 43 is dependent on Claim 37 and recites that said second direction is orthogonal to the first direction **(page 3, lines 22-25; Fig. 2A)**.

Claim 44 is dependent on Claim 20 and recites that the relative position of the first evaporation source is moved with respect to the substrate in a direction orthogonal to an elongation direction of the first evaporation source **(page 3, lines 22-25; Fig. 2A)**.

Claim 45 is dependent on Claim 20 and recites that the relative position of the second evaporation source is moved with respect to the substrate in a direction orthogonal to an elongation direction of the second evaporation source **(page 3, lines 22-25; Fig. 2A)**.

Claim 48 is dependent on Claims 20 and 37-40 and recites that at least one of the first and second materials comprises an organic material **(page 13, lines 5-6)**.

Claims 49, 59-62, 101 and 176 are dependent on Claims 20, 37-40, 98 and 169, respectively, and recite that said display device is an active matrix electroluminescence display device **(page 1,**

lines 12-15).

Claim 53 is dependent on Claims 37 and 39 and recites that the relative position of the first evaporation source is repeatedly moved with respect to the substrate so that a same portion of the substrate is coated with the first material at least twice **(page 5, lines 2-5, 14-15)**.

Claims 56-58 and 170 are dependent on Claims 38-40 and 169, respectively, and recite that said second direction is orthogonal to the first direction **(page 3, lines 22-25; Fig. 2A)**.

Claims 63-69 are dependent on Claims 20, 37-40, 54 and 55, respectively, and recite that uniformity of the distribution of film thickness of a thin film in a rectangular shape, elliptical shape, or a linear shape region is maintained by using the first evaporation source during the evaporation **(page 3, line 19 - page 4, line 1; page 6, lines 17-23; page 8, lines 22-24)**.

Claim 70 is dependent on Claim 20 and recites that said first and second evaporation chambers are connected with each other through at least one gate **(page 13, line 5; page 14, line 14; page 22, line 27 - page 23, line 1; Fig. 5)**.

Claims 71, 72 and 90 are dependent on Claims 54, 55 and 89, respectively, and recite that at least one of the first and second materials comprises an organic material **(page 13, lines 5-6)**.

Claim 73 is dependent on Claim 20 and recites that the mask fixed to a mask holder

approaches the substrate by a magnet field **(page 9, lines 1-5)**.

Claims 74-80, 84, 88 and 91 are dependent on Claims 20, 37-40, 54, 55, 81, 85 and 89, respectively, and recite that each of the first and second evaporation sources has a length exceeding 300 mm along the first direction **(page 4, lines 1-5; page 9, lines 8-9)**.

Claims 82, 86 and 93 are dependent on Claims 81, 85 and 92, respectively, and recite that the hole injecting layer comprises an organic material **(page 13, lines 17-18; page 18, line 27 - page 19, line 4)**.

Claims 83, 87 and 95 are dependent on Claims 81, 85 and 95, respectively, and recites that the light emitting layer comprises an organic material **(page 13, lines 5-6; page 18, line 27 - page 19, line 4)**.

Claims 94, 97 and 100 are dependent on Claims 92, 95 and 98, respectively, and recite that the evaporation source has a length exceeding 300 mm along the first direction **(page 4, lines 1-5; page 9, lines 8-9)**.

Claim 99 is dependent on Claim 98 and recites the method further comprising steps of:

fixing a mask **(208)** to the substrate wherein the mask is located between the substrate and the evaporation source **(page 8, lines 19-21; page 4, lines12-15; Fig. 2B)**.

Claims 102, 105, 108, 111, 114, 117, 120, 123, 126 and 129 are dependent on Claims 20, 37-40, 54, 55, 81, 85 and 89, respectively, and recite that the substrate is located above the first evaporation source,

wherein the first material is formed on a lower surface of the substrate **(page 12, lines 13-20; Fig. 2B)**.

Claims 103, 106, 109, 112, 115, 118, 121, 124, 127, 130, 133, 136 and 139 are dependent on Claims 20, 37-40, 54, 55, 81, 85, 89, 92, 95 and 98, respectively, and recite that a lower surface of the substrate is provided with thin films **(page 5, lines 2-5; page 12, lines 16-18; Fig. 2B)**.

Claims 104, 107, 110, 113, 116, 119, 122, 125, 128, 131, 134, 137 and 140 are dependent on Claims 20, 37-40, 54, 55, 81, 85, 89, 92, 95 and 98, respectively, and recite that a lower surface of the substrate is provided with a transparent conducting film **(page 12, lines 9-18; Fig. 2B)**.

Claims 132, 135 and 138 are dependent on Claims 92, 95 and 98, respectively, and recite that the substrate is located above the evaporation source,

wherein the first material is formed on a lower surface of the substrate **(page 12, lines 13-20; Fig. 2B)**.

Claims 141, 143 and 173 are dependent on Claims 95, 98 and 169, respectively, and recite that said material is organic **(page 1, lines 18-19)**.

Claims 142, 144 and 174 are dependent on claims 95, 98 and 169, respectively, and recite that said material is inorganic **(page 1, lines 18-19)**.

Claims 145 and 149 are dependent on Claims 39 and 40, respectively, and recite that a gap between said first evaporation cells has a distance a and a distance between said first evaporation source and said mask is 2a to 100a **(page 6, lines 12-16)**.

Claims 146 and 150 are dependent on Claims 145 and 149, respectively, and recite that said distance between said first evaporation source and said mask is 5a to 50a **(page 6, lines 12-16)**.

Claims 147 and 151 are dependent on Claims 39 and 40, respectively, and recite that a gap between said second evaporation cells has a distance a and a distance between said second evaporation source and said mask is 2a to 100a **(page 6, lines 12-16)**.

Claims 148 and 152 are dependent on claims 147 and 151, respectively, and recite that said distance between said second evaporation source and said mask is 5a to 50a **(page 6, lines 12-16)**.

Claims 153-155 are dependent on Claims 38, 40 and 55, respectively, and recite that during evaporation each of the first and second evaporation sources moves from one end of the substrate to the other end **(page 4, lines 26-27; page 10, lines 4-5)**.

Claims 156-168 and 175 are dependent on Claims 20, 37-40, 54, 55, 81, 85, 89, 92, 95, 98

and 169 and recite that said display device is a passive matrix electroluminescence display device **(page 1, lines 14-15)**.

Claim 171 is dependent on Claim 169 and recites that said electroluminescence display device is a color display,

wherein the substrate is located above the evaporation source,

wherein a lower surface of the substrate is provided with thin films,

wherein thin films of materials for emitting different colors are formed for each pixel **(page 1, line 27; page 2, lines 1-2; page 4, lines 17-18; page 5, lines 6-9; page 12, lines 12-18; Fig. 2B)**.

Claims 172 is dependent on Claim 169 and recites that each of the evaporation sources has a length exceeding 300 mm along the first direction **(page 4, lines 1-5; page 9, lines 8-9)**.

vi. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following are the grounds for rejection presented for review:

1. Claims 20-22, 44, 45, 48, 63, 70, 74 and 156 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. (US 5,817,366) in view of Grothe et al. (US 3,391,490), Monk (US 4,187,801) and Nagayama et al. (US 5,701,055).

2. Claims 37, 43, 48, 53, 64, 75 and 157 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Bennett (US 2,435,997), Grothe et al and Nagayama et al.

3. Claims 38, 48, 56, 65, 76, 153 and 158 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Bennett, Grothe et al., Nagayama et al. and Monk.

4. Claims 39, 48, 53, 57, 66, 77 and 159 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Nagayama et al., Feuerstein et al. (US 4,627,989), Bennett, and Yamamoto et al. (JP 11-61386, US 6,179,923).

5. Claims 40, 48, 58, 67, 78, 154 and 160 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Nagayama et al., Feuerstein et al., Bennett and Yamamoto et al. or in the alternative, over Arai et al., in view of Nagayama et al., Feuerstein et al., Bennett, Monk, and Yamamoto et al.

6. Claim 49 is rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al., and further in view of Spitzer et al. (US 5,258,325).

7. Claims 54, 68, 71, 79 and 161 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Nagayama et al., Bennett, Grothe et al. and Yamamoto et al.

8. Claims 55, 69, 72, 80, 155 and 162 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Nagayama et al., Bennett, Grothe et al., Monk, and Yamamoto et al.

9. Claim 59 is rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Nagayama et al., Bennett and Grothe et al., further in view of Spitzer et al.

10. Claim 60 is rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Nagayama et al., Bennett, Grothe et al, and Monk, further in view of Spitzer et al.

11. Claim 61 is rejected under 35 USC §103(a) as being unpatentable over Arai et al., in view of Nagayama et al., Feuerstein et al., Bennett, and Yamamoto et al., and further in view of Spitzer et al.

12. Claim 62 is rejected under 35 USC §103(a) as being unpatentable over Arai et al., in view of Nagayama et al., Feuerstein et al., Bennett, and Yamamoto et al., or in the alternative, over Arai et al., in view of Nagayama et al., Feuerstein et al., Bennett, Monk, and Yamamoto et al. and further in view of Spitzer et al.

13. Claim 73 is rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al., further in view of Mizutani et al. (US 6,326,726).

14. Claims 81-88, 92-100, 141-144, 163, 164 ,166-168 and 169-176 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al.

15. Claims 89-91 and 165 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al.

16. Claim 101 is rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al., further in view of Spitzer.

17. Claims 102-104 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Grothe et al., Monk, Nagayama et al. and further in view of Bertelsen (US 3,110,620).

18. Claims 105-107 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Bennett, Grothe et al., and Nagayama et al. and further in view of Bertelsen.

19. Claims 108-110 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Bennett, Grothe et al., Nagayama et al., and Monk and further in view of Bertelsen.

20. Claims 111-113 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Nagayama et al., Feurestein et al., Bennett, and Yamamoto et al. and further in view of Bertelsen.

21. Claims 114-116 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Nagayama et al., Feuerstein et al., Bennett, and Yamamoto et al. or in the alternative, over Arai et al., in view of Nagayama et al., Feuerstein et al., Bennett, Monk and Yamamoto et al. further in view of Bertelsen.

22. Claims 117-119 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Nagayama et al., Bennett, Grothe et al. and Yamamoto et al. further in view of Bertelsen.

23. Claims 120-122 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Nagayama et al., Bennett, Grothe et al., Monk and Yamamoto et al. further in view of Bertelsen.

24. Claims 123-128 and 132-138 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al. further in view of Bertelsen.

25. Claims 129-131 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al. further in view of Bertelsen.

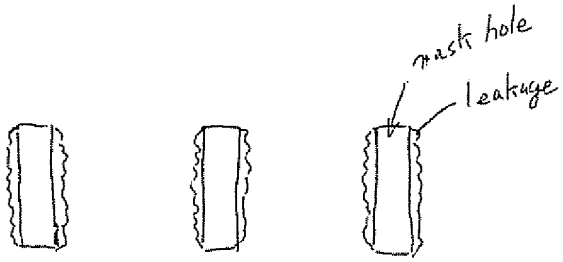
26. Claims 145-148 are rejected under 35 USC §103(a) as being unpatentable over Arai et al. in view of Nagayama et al. , Feuerstein et al., Bennett, and Yamamoto et al. and further in view of either Noguchi et al. (US 4,596,735) or Martin (US 4,469,719).

27. Claims 149-152 are rejected under 35 USC §103(a) as being unpatentable over Arai et al., in view of Nagayama et al., Feuerstein et al., Bennett, and Yamamoto et al., or in the alternative, over Arai et al., in view of Nagayama et al., Feuerstein et al., Bennett, Monk, and Yamamoto et al., further in view of either Noguchi et al. or Martin.

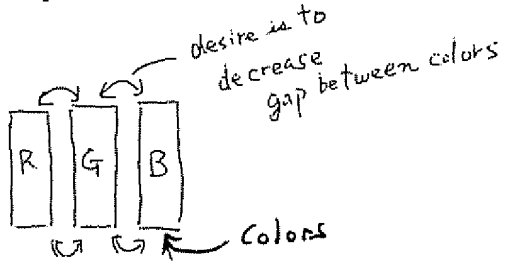
vii. ARGUMENT

A. BACKGROUND

The present invention is directed to a highly advantageous method for manufacturing a display device. In fact, with the claimed method, the uniformity of the film thickness can be greatly improved. In prior devices, the substrate and the mask are stationary, and it takes a considerable period of time to apply a layer. Because it takes so long to apply a layer, not only is the area within the mask hole coated, but the areas under the edges of the mask are also coated. This is considered leakage.



In contrast, with the claimed method, because of the relative movement of the substrate, the coating of the mask area does not require a very long period. As a result, there is minimal coating under the edges of the mask. This is a very important feature for increasing the number of pixels on a display which is very important for a high definition display. Further, it is desirable to decrease the gap between colors to decrease space and therefore increase the number of pixels.



However, if there is leakage (i.e. wherein the areas under the edges of the mask are also coated, as discussed above), a significant gap (space) has to be left between the colors to account for this leakage, and as a result, the space between the colors cannot be decreased. Accordingly, the

colors cannot be moved closer to one another, and the number of pixels cannot be increased. As a result, a high definition display is not possible.

As will be explained below, none of the cited references, either individually or combined, disclose all of the claimed features of the method of the claims of the present application, and none realize or recognize the above advantages and uniformity of the film resulting from the claimed method of the present invention. Therefore, since there is no recognition of these advantages stemming from the claimed method, one skilled in the art would not have combined the cited references in the manner proposed by the Examiner to realize these advantages and arrive at the claimed invention nor would one have any reason to combine these references to arrive at the claimed method, other than by improper hindsight reconstruction. Accordingly, the combination of references and the rejections based thereon are improper and should be reversed.

Appellants will now address the pending rejections of the claims in the Final Rejection.

B. THE REJECTIONS OF THE CLAIMS SHOULD BE REVERSED

Each of the Examiner's pending rejections is a Section 103(a) rejection for obviousness over four or more references. As will be shown below, each of these rejections is improper as a prima facie case of obviousness has not been established, and even if a prima facie case has been established, such a prima facie case has clearly been rebutted.

1. A PRIMA FACIE CASE OF OBVIOUSNESS CANNOT BE BASED ON HINDSIGHT RECONSTRUCTION

Under 35 U.S.C. §103, the burden is on the PTO to produce evidence that the claimed invention is prima facie obvious. In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993); In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). If the PTO fails to make out a prima facie case of obviousness, then the rejection is improper, should be overturned, and Applicants are entitled to a patent. Rijckaert, 9 F.3d at 1532, 28 USPQ2d at 1956; In re Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1984); In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). A prima facie case of obviousness cannot be based on a combination of references wherein the combination of references is based on hindsight reconstruction using the claimed invention as a template. In re Fritch, 972 F.2d 1260, 1266 23 USPQ2d 1780, 1784 (Fed. Cir. 1992); In re Oetiker, 24 USPQ2d 1443, 1447 (Fed. Cir. 1992).

As explained below, in the present case, there can be no basis for combining the references as in the rejections in the Final Rejection to arrive at the claimed invention other than by hindsight reconstruction, using the independent claims of the present application as a blueprint.

As the Federal Circuit stated in McGinley v. Franklin Sports, Inc., 60 USPQ2d 1001, 1008 (Fed. Cir. 2001), "[t]he genius of invention is often a combination of known elements which in hindsight seems preordained." As a result, "[I]t is impermissible to use the claimed invention as an instructional manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." In re Fritch, 972 F.2d at 1266, 23USPQ2d at 1784. "One cannot use hindsight reconstruction to pick and chose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fine, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988).

Combining references in a manner that reconstructs the applicant's invention only with the benefit of hindsight, is insufficient to present a *prima facie* case of obviousness. In re Oetiker, 24 USPQ2d at 1444-1446 (Fed. Cir. 1992).

2. THE REJECTION OF INDEPENDENT CLAIM 20 AND THE CLAIMS DEPENDENT THEREON IS IMPROPER

The Examiner rejects independent Claim 20, and Claims 21-22, 44, 45, 48, 63, 70, 74 and 156 dependent thereon, under 35 USC §103(a) as being unpatentable over Arai et al. (US 5,817,366) in view of Grothe et al.[2], Monk (US 4,187,801) and Nagayama et al. (US 5,701,055). This rejection is improper and should be reversed.

In the Final Rejection, the Examiner states that these claims are rejected for the same reasons as set-forth under this heading in the prior Office action (which was the Office Action of February 22, 2006 which states that the rejections are the same as set forth in the Final Rejection of July 26, 2005); therefore, Appellants are referring back to 7-26-05 Final Rejection for the Examiner's basis for this rejection.

The basis for this rejection is an intricate combination of four different references to arrive at the claimed invention. As shown below, the combination of references used in the rejection to arrive at the claimed invention is based on improper hindsight reconstruction, and accordingly, the rejection based on this construction is improper and should be reversed. Further, Appellants can show

---

[2] Appellants assume that this is US Patent No. 3,931,490, as opposed to US 3,391,490 which is cited in the Final Rejection. U.S. 3,391,490 is to Evans for a Remotely Controlled Vehicle System. Appellants have informed the Examiner numerous times of this error, but the Examiner has yet to correct it.

evidence of the non-obviousness of the claimed invention.

a. The Rejection Is Based on Improper Hindsight Reconstruction

In the 7-26-05 Final Rejection (for which the most recent Final Rejection appears to rely) and in prior actions, the Examiner admits that Arai does not disclose a number of the claimed features of the rejected claims. The Examiner, however, contends that it would have been obvious to one of ordinary skill in the art to (1) modify the process of Arai so as to utilize as the evaporation source, the evaporation source of Grothe, and to (2) further modify the process of Arai so as to move the substrate and the evaporating sources relative to each other as allegedly taught by Monk. In the 7-26-05 Final Rejection (and adopted in the present Final Rejection), the Examiner continues to repeat these contentions and adds a further contention that it would have been obvious to one of ordinary skill in the art to (3) modify the process of Arai with the teachings from Nagayama so as to utilize a shadow mask, as recited in independent Claim 20, in the claimed fashion. Hence, it appears that the Examiner has taken Arai and modified it with three separate references, in three separate (and unrelated) steps. The Examiner does not include an explanation for why it would be obvious to one skilled in the art to modify Arai in such a manner to arrive at the claimed invention. Instead, as explained below, it appears that the Examiner has picked and chosen isolated elements from the references based on the claimed invention. Hence, Appellants respectively disagree with the Examiner's contentions and submit that this rejection and combination of references in the rejection are improper.

Independent Claim 20 is directed to a method of manufacturing an electroluminescence display device. As explained above, the claimed features as combined in the method of Claim 20

are advantageous, for example, for preventing leakage and providing more pixels for the display device. The result is a high definition display that was not previously possible.

None of the references disclose the claimed features as specifically combined in Claim 20 nor do the references recognize the advantages resulting from these claimed features. While the Examiner argues that the references do not have to be combined for the reasons contemplated by the inventor, it is still necessary to combine the references in a logical manner to one skilled in the art and provide evidence that one skilled in the art would combine the references in the same manner as the Examiner, without knowledge of the claimed invention. See e.g. Ecolochem, Inc. v. Southern California Edison Co., 227 F.3d 1361, 56 USPQ2d 1065, 1076 (Fed. Cir. 2000). In order to logically and legitimately combine references, the Examiner must consider the entire teachings in the references and cannot pick and choose among isolated teachings in the references to the exclusion of the other teachings in the reference. Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 796 F.2d 443, 230 USPQ 416, 419-420 (Fed. Cir. 1986); In re Fine, supra. To do so is to engage in hindsight reconstruction. Id. As shown below, this is what the Examiner has done in the pending rejection.

i. The Combination of Arai and Grothe Is Improper

The Examiner admits that Arai does not disclose first and second evaporation sources having a first direction longer than the second direction, as recited in Claim 20. The Examiner cites to the evaporation source in Grothe and states that it would have been obvious to one of ordinary skill in the art to modify the process of Arai to use the evaporation source of Grothe and that one "would have been motivated to do so by the desire and expectation of achieving enhanced vapor density and

deposition uniformity, as taught by Grothe." However, as explained below, the Examiner's motivation is not valid and does not stand up to scrutiny. Further, one skilled in the art would not combine these references.

Initially, it is noted that the Examiner has selected an isolated sentence in Grothe on which to base his rejection. What Grothe actually states in the line in question is that "coating of wide surfaces, such as wide, running webs, ribbons and the like by vapor deposition requires high density of the vapor." See col. 5, lns. 41-43 in Grothe. Hence, Grothe discusses high vapor density and uniformity only with regard to wide, running webs or ribbons. Further, Grothe relates to coating of wide area work surfaces.

In contrast, Arai relates to a process and apparatus for manufacturing an organic electroluminescence cell or element, and more particularly to a process "wherein the steps after formation of a transparent electrode on a substrate plate up to formation of a protective film are successively carried out in vacuum chambers which are isolated from the oxidative external atmosphere and thereafter withdrawn from the chambers into the air." See Abstract in Arai. Hence, Arai relates to sealing of an organic electroluminescence cell.

Therefore, the coating of Grothe is not related to the sealing in Arai, and the Examiner's reason for combining the references is not related to the teachings in Arai. Hence, one skilled in the art would not use this as a reason to combine these references, and there is no motivation or reason for one skilled in the art to combine these unrelated technologies.

Further, the Examiner is basing his alleged motivation to combine Grothe and Arai on this statement, without consideration of the teachings in the remainder of the reference. For example, Grothe discloses applying substances, in a vacuum, on a work surface 21 particularly wide tapes,

webs, or the like. See col. 7, lns 9-10. Grothe also states that "the entire system is in vacuum, that is, enclosed in an evacuated vessel", and that "movement of the web 21 is preferably continuous." Col. 3, lns. 62-65. Hence, Grothe is not directed to a system involving, nor does it disclose or suggest, transferring a substrate between chambers, as in Arai and the claimed invention. Instead, Grothe appears to be one closed system. Based on the teachings in Grothe, one skilled in the art would not believe that the Grothe system is usable in a system involving transfer between chambers. The Examiner does not appear to have considered these teachings in Grothe when combining these references. Grothe also does not disclose or suggest connecting chambers. The Examiner also does not appear to have considered this lack of teaching. Further, Grothe also does not disclose or suggest transferring the web between chambers or how one could even transfer the web between chambers. Furthermore, there is nothing in Arai or Grothe to teach one skilled in the art as to how one could allegedly incorporate the device from Grothe in the device in Arai. Therefore, in light of the above teachings in Grothe, which appear to teach away from the subject matter of the present invention (directed to a method with multiple chambers), and the lack of teachings in Grothe relevant to the subject matter of Arai, there would have been no motivation for one skilled in the art to look at and select an isolated portion of Grothe and combine it with Arai to try to arrive at the claimed invention, except when using the claimed invention as a guideline (i.e. the Examiner looked at the claim and Arai, saw that Arai did not have evaporation sources being longer in a first direction than a second direction, searched for this specific feature in the references, allegedly found the specific feature, and then without regard to the other teachings in the references, decided to use that feature and combine the references).

The Examiner, however, argues that the test is not whether the features of a secondary

reference may be bodily incorporated into the structure of the primary reference but what the combined references would have suggested to those of ordinary skill in the art.

The Examiner, however, is missing the point. Before one can determine what the combined references would suggest, it must first be determined if the references can be combined. It is well established that in order to combine references, there must be some teaching, suggestion or motivation to do so and that the teachings in the references must be considered in their entirety, See In re Fine; Bausch & Lomb, supra. In this case, Arai and Grothe are directed to different systems. Arai is directed to a system with multiple chambers and sealing of an organic electroluminescence cell while Grothe is directed to a closed system in a vessel and for coating wide work area surfaces. There is no reason why one skilled in the art, after reviewing Arai, would look to Grothe to modify the system of Arai. The only reason to do so would be hindsight reconstruction based on the claims of the present application, as explained above. This is clearly improper.

Yet another reason that one skilled in the art would not be motivated to rely upon Grothe is that Grothe does not disclose a display device as in the claimed method and Arai. Hence, one skilled in the art would have no motivation to even look at Grothe.

Therefore, as there is no proper motivation or reason to combine Arai and Grothe, the combination of these two references is improper, and the rejection based thereon is improper. Hence, a prima facie case of obviousness has not been established.

ii. The Combination of Monk and Arai Is Improper

While Monk teaches that, in a process where some wafers are coated from an evaporation source, it is known that "either the source of the samples must be moved relative to each other during

treatment" (emphasis added), Monk discloses a face-up method in which film formation is performed with the wafer surface, onto which a film is to be formed, facing upward. See e.g. Fig. 4 in Monk. Monk does not disclose or suggest a face-down method.

Further, Monk does not disclose a display device or method for forming a display device. The Examiner disregards and simply dismisses this fact in his analysis. Appellants have questioned the Examiner as to what would be one skilled in the art's motivation to look at Monk when it is directed to different technology. The Examiner has failed to provide an answer to this question.

In fact, there would have been no motivation for one skilled in the art to combine Arai and Monk to try to arrive at the claimed invention. Further, no explanation is provided for how one skilled in the art would incorporate Monk into Arai. The only way these two references could be combined is through improper hindsight reconstruction.

Therefore, the combination of Monk and Arai is improper, and the rejection based thereon is improper.

b. Evidence Of Nonobviousness Of Claimed Invention

The nonobviousness of the claimed invention is evidenced by the fact that others did not begin to use ideas similar to the present invention until after Applicants' invention. For example, the Examiner has not found a single prior reference showing the claimed invention or anything remotely similar to it. Instead, he has to attempted to combine four or more references to try to come close to the claimed invention. As Appellants show above, the Examiner's attempt is improper.

After Applicants' invention, however, references, such as US patent publication 2002/0076847 (Yamada et al.), US patent publication 2002/0179013 (Kido et al), and Van Slyke et

al. "Linear Source Deposition of Organic Layers for Full-Color OLED", SID 02 Digest, p. 886-889 (2002), show ideas similar to the present invention. Each of these references are dated after the date of the present application. Each of these references was made of record in this application with the information disclosure statement of May 22, 2006 and considered by the Examiner with the Final Rejection of August 10, 2006. If the present invention was obvious, these ideas would have surfaced prior to Applicants' invention. This is evidence of the non-obviousness of the claimed invention and rebuts any argument by the Examiner.

Accordingly, it is respectfully submitted that the method of independent Claim 20 and those claims dependent thereon is nonobvious.

c. Conclusion

Accordingly, for at least the above-stated reasons, the rejection of independent Claim 20 is improper as the motivation for the combination of references is not valid or supportable, and one skilled in the art would not combine these references. Instead, the combination must be based on improper hindsight reconstruction. Accordingly, a prima facie case of obviousness has not been proved by the Examiner.

Further, independent Claim 20 and those claims dependent thereon are not obvious in view of these references.

Therefore, these claims are patentable over these references, and it is respectfully requested that this rejection be reversed or withdrawn.

3. **THE OTHER REJECTIONS OF THE CLAIMS ARE SIMILARLY IMPROPER**

Claims 37, 43, 48, 53, 64, 75 and 157

The Examiner also rejects Claims 37, 43, 48, 53, 64, 75 and 157 under 35 USC §103 as being unpatentable over Arai et al. in view of Bennett (US 2,435,997) and Grothe et al. and Nagayama et al. This rejection is also respectfully traversed.

In the Final Rejection, the Examiner combines Arai, Grothe and Nagayama in the same manner discussed above, and further contends that it would have been obvious to one of ordinary skill in the art to modify the method of Arai so as to move the evaporation source relative to the substrate, as allegedly taught by Bennett.

For at least the reasons discussed above, independent Claim 37 and those claims dependent thereon are patentable over these cited references, and the rejection is improper. Accordingly, it is respectfully requested that this rejection be reversed or withdrawn.

Claims 38, 48, 56, 65, 76, 153 and 158

The Examiner also rejects Claims 38, 48, 56, 65, 76, 153 and 158 under 35 USC §103 as being unpatentable over Arai et al. in view of Bennett, Grothe et al., Nagayama et al. and Monk. This rejection is also respectfully traversed.

In the Final Rejection, the Examiner combines Arai, Grothe and Nagayama in the same manner discussed above, and further contends that it would have been obvious to further modify the method of Arai with the alleged teachings of Bennett and Monk.

For at least the reasons discussed above, independent Claim 38 and those claims dependent thereon are patentable over these cited references, and the rejection is improper. Accordingly, it is

respectfully requested that this rejection be reversed or withdrawn.

Claims 39, 48, 53, 57, 66, 77 and 159

The Examiner also rejects Claims 39, 48, 53, 57, 66, 77 and 159 under 35 USC §103 as being unpatentable over Arai et al. in view of Nagayama et al., Feuerstein et al (US 4,627,989), Bennett, and Yamamoto et al. (JP 11-61386; US 6,179,923 as English equivalent). This rejection is also respectfully traversed.

In the Final Rejection, the Examiner asserts Arai and Nagayama in the same manner discussed above, and further contends that it would have been obvious to one of ordinary skill in the art to modify the method of Arai with the alleged teachings of Feuerstein, Bennett and Yamamoto

For at least the reasons discussed above, independent Claim 39 and those claims dependent thereon are patentable over these cited references, and the rejection is improper. Accordingly, it is respectfully requested that this rejection be reversed or withdrawn.

Claims 40, 48, 58, 67, 78, 154 and 160

The Examiner also rejects Claims 40, 48, 58, 67, 78, 154 and 160 under 35 USC §103 as being unpatentable over Arai et al. in view of Nagayama et al., Feuerstein et al., Bennett, and Yamamoto et al. or in the alternative over Arai et al. in view of Nagayama et al., Feuerstein et al., Bennett, Monk, and Yamamoto et al. This rejection is also respectfully traversed.

In the Final Rejection, the Examiner combines the references in the same manner discussed above, contends that it would have been obvious to combine these references to arrive at the claimed invention, and contends that undisclosed features would be inherent in the references.

For at least the reasons discussed above, independent Claim 40 and those claims dependent thereon are patentable over these cited references, and the rejection is improper. Accordingly, it is respectfully requested that this rejection be reversed or withdrawn.

Claim 49

The Examiner also rejects Claim 49 under 35 USC §103 as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al. and further in view of Spitzer et al. (US 5,258,325). This rejection is also respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be reversed or withdrawn.

Claims 54, 68, 71, 79 and 161

The Examiner also rejects Claims 54, 68, 71, 79 and 161 under 35 USC §103 as being unpatentable over Arai et al. in view of Nagayama et al., Bennett, Grothe et al. and Yamamoto et al. This rejection is also respectfully traversed.

In the Final Rejection, the Examiner combines the references in the same manner discussed above, contends that it would have been obvious to combine the references to arrive at the claimed invention, and contends that the undisclosed features would be inherent in the references or obvious.

For at least the reasons discussed above, independent Claim 54 and those claims dependent thereon are patentable over these cited references and the rejection is improper. Accordingly, it is respectfully requested that this rejection be reversed or withdrawn.

Claims 55, 69, 72, 80, 155 and 162

The Examiner also rejects Claims 55, 69, 72, 80, 155 and 162 under 35 USC §103 as being unpatentable over Arai et al. in view of Nagayama et al., Bennett, Grothe et al., Monk, and Yamamoto et al. This rejection is also respectfully traversed.

In the Final Rejection, the Examiner combines the references in the same manner discussed above, contends that it would have been obvious to combine these references to arrive at the claimed invention, and contends that undisclosed features would be inherent in the references.

For at least the above-stated reasons, independent Claim 55 and those claims dependent thereon are patentable over these cited references and the rejection is improper. Accordingly, it is respectfully requested that this rejection be reversed or withdrawn.

Claim 59

The Examiner also rejects Claim 59 under 35 USC §103 as being unpatentable over Arai et al., in view of Nagayama et al., Bennett and Grothe et al; further in view of Spitzer et al. This rejection is also respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be reversed or withdrawn.

Claim 60

The Examiner also rejects Claim 60 under 35 USC §103 as being unpatentable over Arai et al., in view of Nagayama et al., Bennett, Grothe et al. and Monk, further in view of Spitzer et al. This

rejection is also respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be reversed or withdrawn.

Claim 61

The Examiner also rejects Claim 61 under 35 USC §103 as being unpatentable over Arai et al., in view of Nagayama et al., Feuerstein et al., Bennett, and Yamamoto et al., further in view of Spitzer et al. This rejection is also respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be reversed or withdrawn.

Claim 62

The Examiner also rejects Claim 62 under 35 USC §103 as being unpatentable over Arai et al., in view of Nagayama et al., Feurestein et al., Bennett and Yamamoto et al., or in the alternative over Arai et al., in view of Nagayama et al., Feuerstein et al., Bennett, Monk and Yamamoto et al., further in view of Spitzer et al. This rejection is respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be reversed or withdrawn.

Claim 73

The Examiner also rejects Claim 73 under 35 USC §103 as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al., further in view of Mizutani et al. (US 6,326,726). This rejection is respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be reversed or withdrawn.

Claims 81-88, 92-100, 141-144, 163, 164, 166-168 and 169-176

The Examiner also rejects Claims 81-88, 92-100, 141-144, 163, 164, 166-168 and 169-176 under 35 USC §103 as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al. This rejection is respectfully traversed.

In the Final Rejection, the Examiner combines the references in the same manner discussed above, contends that it would have been obvious to combine these references to arrive at the claimed invention, and contends that undisclosed features would be inherent in the references.

For at least the above-stated reasons, independent Claims 81, 85, 92, 95 and 98 and those claims dependent thereon are patentable over these cited references, and the rejection is improper. Accordingly, it is respectfully requested that this rejection be reversed or withdrawn.

Claims 89-91 and 165

The Examiner also rejects Claims 89-91 and 165 under 35 USC §103 as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al. This rejection is respectfully traversed.

In the Final Rejection, the Examiner combines the references in the same manner discussed above, contends that it would have been obvious to combine these references to arrive at the claimed invention, and contends that undisclosed features would be inherent in the references.

For at least the above-stated reasons, independent Claim 89 and those claims dependent thereon are patentable over these cited references, and the rejection is improper. Accordingly, it is respectfully requested that this rejection be reversed or withdrawn.

Claim 101

The Examiner also rejects Claim 10 under 35 USC §103 as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al., further in view of Spitzer. This rejection is respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be reversed or withdrawn.

Claims 102-104

The Examiner also rejects Claims 102-104 under 35 USC §103 as being unpatentable over Arai et al. in view of Grothe et al., Monk, Nagayama et al. and further in view of Bertelsen (US 3,110,620). This rejection is respectfully traversed.

These claims are dependent claims. Therefore, for at least the reasons discussed above for the independent claims, these claims would also be patentable.

Further, as the Examiner admits, this feature, that a lower surface of the substrate is provided

with a transparent conducting film, is not disclosed in any of the cited references.

Accordingly, it is requested that this rejection be reversed or withdrawn.

Claims 105-107

The Examiner also rejects Claims 105-107 under 35 USC §103 as being unpatentable over Arai et al. in view of Bennett, Grothe et al., and Nagayama et al. and further in view of Bertelsen. This rejection is respectfully traversed.

These claims are dependent claims. Therefore, for at least the reasons discussed above for the independent claims, these claims would also be patentable. Further, for the reasons explained above for Claims 102-104, these claims are also nonobvious.

Accordingly, it is requested that this rejection be reversed or withdrawn.

Claims 108-110

The Examiner also rejects Claims 108-110 under 35 USC §103 as being unpatentable over Arai et al. in view of Bennett, Grothe et al., Nagayama et al., and Monk and further in view of Bertelsen. This rejection is respectfully traversed.

These claims are dependent claims. Therefore, for at least the reasons discussed above for the independent claims, these claims would also be patentable. Further, for the reasons explained above for Claims 102-104, these claims are also nonobvious.

Accordingly, it is requested that this rejection be reversed or withdrawn.

Claims 111-113

The Examiner also rejects Claims 111-113 under 35 USC §103 as being unpatentable over Arai et al. in view of Nagayama et al., Feurestein et al., Bennett, and Yamamoto et al. and further in view of Bertelsen. This rejection is respectfully traversed.

These claims are dependent claims. Therefore, for at least the reasons discussed above for the independent claims, these claims would also be patentable. Further, for the reasons explained above for Claims 102-104, these claims are also nonobvious.

Accordingly, it is requested that this rejection be reversed or withdrawn.

Claims 114-116

The Examiner also rejects Claims 114-116 under 35 USC §103 as being unpatentable over Arai et al. in view of Nagayama et al., Feuerstein et al., Bennett, and Yamamoto et al. or in the alternative, over Arai et al., in view of Nagayama et al., Feuerstein et al., Bennett, Monk and Yamamoto et al. further in view of Bertelsen. This rejection is respectfully traversed.

These claims are dependent claims. Therefore, for at least the reasons discussed above for the independent claims, these claims would also be patentable. Further, for the reasons explained above for Claims 102-104, these claims are also nonobvious.

Accordingly, it is requested that this rejection be reversed or withdrawn.

Claims 117-119

The Examiner also rejects Claims 117-119 under 35 USC §103 as being unpatentable over Arai et al. in view of Nagayama et al., Bennett, Grothe et al. and Yamamoto et al. further in view of Bertelsen. This rejection is respectfully traversed.

These claims are dependent claims. Therefore, for at least the reasons discussed above for

the independent claims, these claims would also be patentable. Further, for the reasons explained above for Claims 102-104, these claims are also nonobvious.

Accordingly, it is requested that this rejection be reversed or withdrawn.

Claims 120-122

The Examiner also rejects Claims 120-122 under 35 USC §103 as being unpatentable over Arai et al. in view of Nagayama et al., Bennett, Grothe et al., Monk and Yamamoto et al. further in view of Bertelsen. This rejection is respectfully traversed.

These claims are dependent claims. Therefore, for at least the reasons discussed above for the independent claims, these claims would also be patentable. Further, for the reasons explained above for Claims 102-104, these claims are also nonobvious.

Accordingly, it is requested that this rejection be reversed or withdrawn.

Claims 123-128 and 132-138

The Examiner also rejects Claims 123-128 and 132-138 under 35 USC §103 as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al. further in view of Bertelsen. This rejection is respectfully traversed.

These claims are dependent claims. Therefore, for at least the reasons discussed above for the independent claims, these claims would also be patentable. Further, for the reasons explained above for Claims 102-104, these claims are also nonobvious.

Accordingly, it is requested that this rejection be reversed or withdrawn.

Claims 129-131

The Examiner also rejects Claims 129-131 under 35 USC §103 as being unpatentable over Arai et al. in view of Grothe et al., Monk and Nagayama et al. further in view of Bertelsen. This rejection is respectfully traversed.

These claims are dependent claims. Therefore, for at least the reasons discussed above for the independent claims, these claims would also be patentable. Further, for the reasons explained above for Claims 102-104, these claims are also nonobvious.

Accordingly, it is requested that this rejection be reversed or withdrawn.

C. CONCLUSION

For at least the reasons stated above, Appellants earnestly and respectfully submit that the Examiner has failed to present a prima facie case of obviousness as the Examiner's alleged motivation to combine references is not valid, and the combination of references and rejections are based on improper hindsight reconstruction. Further, the claims would not have been obvious in view of the cited references.

Hence, the rejection of the claims should be reversed, and the claims allowed.

Accordingly, Appellants request that this Appeal be sustained in all respects, and that all rejections in the Final Rejection be reversed.

Respectfully submitted,

/Mark J. Murphy/
Mark J. Murphy
Registration No. 34,225

COOK, ALEX, McFARRON, MANZO,
CUMMINGS & MEHLER, LTD.
200 West Adams Street, Suite 2850
Chicago, Illinois 60606
Customer No. 26568

April 16, 2007

viii. CLAIMS APPENDIX

In accordance with 37 CFR 41.37(c)(1)(viii), the text of the claims on appeal is as follows:

20. A method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source in a first evaporation chamber;

providing a second evaporation source in a second evaporation chamber wherein each of the first and second evaporation sources has a first direction and a second direction different from each other, each of the first and second evaporation sources being longer in the first direction than in the second direction;

disposing a substrate in the first evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source;

evaporating a first material from said first evaporation source to deposit said first material over the substrate wherein the relative position of the substrate is repeatedly moved with respect to the first evaporation source during the evaporation of the first material in order that a same portion of the substrate is coated with the first material at least twice;

transferring the substrate from the first evaporation chamber into the second evaporation chamber after the deposition of the first material;

evaporating a second material from said second evaporation source to deposit said second material over the substrate wherein the relative position of the substrate is moved with respect to the second evaporation source during the evaporation of the second material.

21. The method according to claim 20 further comprising a step of cleaning an inside of the first and second evaporation chambers, respectively.

22. The method according to claim 20 wherein said first and second evaporation chambers are connected to each other through a conveyor chamber.

37. A method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source in an evaporation chamber;

providing a second evaporation source in a second chamber connected to the evaporation chamber wherein each of the first and second evaporation sources has a first direction and a second direction different from each other, each of the first and second evaporation sources being longer in the first direction than in the second direction;

disposing a substrate in the evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source;

evaporating a first material from said first evaporation source to deposit said first material over the substrate in the evaporation chamber;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material;

evaporating a second material from said second evaporation source to deposit said second material over the substrate in the evaporation chamber; and

repeatedly moving the relative position of the second evaporation source with respect

to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice.

38. A method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source in an evaporation chamber;

providing a second evaporation source in a second chamber connected to the evaporation chamber wherein each of the first and second evaporation sources has a first direction and a second direction different from each other, each of the first and second evaporation sources being longer in the first direction than in the second direction;

disposing a substrate in the evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source;

evaporating a first material from said first evaporation source to deposit said first material over the substrate in the evaporation chamber;

repeatedly moving the relative position of the first evaporation source with respect to the substrate along the second direction during the step of evaporating the first material in order that a same portion of the substrate is coated with the first material at least twice;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material;

evaporating a second material from said second evaporation source to deposit said second material over the substrate in the evaporation chamber; and

repeatedly moving the relative position of the second evaporation source with respect

to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice,

wherein each of the first and second evaporation sources is longer than at least one edge of the substrate.

39. A method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source in an evaporation chamber wherein the first evaporation source comprises a plurality of first evaporation cells arranged along a first direction;

providing a second evaporation source in a second chamber connected to the evaporation chamber wherein the second evaporation source comprises a plurality of second evaporation cells;

disposing a substrate in the evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source;

evaporating a first material from said first evaporation source to deposit said first material over the substrate in the evaporation chamber;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material so that the plurality of second evaporation cells are arranged in the first direction;

evaporating a second material from said second evaporation source to deposit said second material over the substrate in the evaporation chamber;

repeatedly moving the relative position of the second evaporation source with respect

to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice; and

cleaning an inside of the evaporation chamber.

40. A method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source in an evaporation chamber wherein the first evaporation source comprises a plurality of first evaporation cells arranged along a first direction;

providing a second evaporation source in a second chamber connected to the evaporation chamber wherein the second evaporation source comprises a plurality of second evaporation cells;

disposing a substrate in the evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source;

evaporating a first material from said first evaporation source to deposit said first material over the substrate in the evaporation chamber;

repeatedly moving the relative position of the first evaporation source with respect to the substrate along a second direction during the step of evaporating the first material in order that a same portion of the substrate is coated with the first material at least twice;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material so that the plurality of second evaporation cells are arranged in the first direction;

evaporating a second material from said second evaporation source to deposit said

second material over the substrate in the evaporation chamber;

repeatedly moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice; and

cleaning an inside of the evaporation chamber,

wherein each of the first and second evaporation sources is longer than at least one edge of the substrate.

43. The method according to claim 37 wherein said second direction is orthogonal to the first direction.

44. The method according to claim 20 wherein the relative position of the first evaporation source is moved with respect to the substrate in a direction orthogonal to an elongation direction of the first evaporation source.

45. The method according to claim 20 wherein the relative position of the second evaporation source is moved with respect to the substrate in a direction orthogonal to an elongation direction of the second evaporation source.

48. The method according to any one of claims 20 and 37-40 wherein at least one of the first and second materials comprises an organic material.

49. The method according to claim 20 wherein said display device is an active matrix electroluminescence display device.

53. The method according to any one of claims 37 and 39 wherein the relative position of the first evaporation source is repeatedly moved with respect to the substrate so that a same portion of the substrate is coated with the first material at least twice.

54. A method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source in an evaporation chamber;

providing a second evaporation source in a second chamber connected to the evaporation chamber wherein each of the first and second evaporation sources has a first direction and a second direction different from each other, each of the first and second evaporation sources being longer in the first direction than in the second direction;

disposing a substrate in the evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source;

evaporating a first material from said first evaporation source to deposit said first material over the substrate in the evaporation chamber;

repeatedly moving the relative position of the first evaporation source with respect to the substrate along the second direction during the step of evaporating the first material in order that a same portion of the substrate is coated with the first material at least twice;

transferring the second evaporation source from the second chamber into the

evaporation chamber after evaporating the first material;

evaporating a second material from said second evaporation source to deposit said second material over the substrate in the evaporation chamber;

repeatedly moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice; and

cleaning an inside of the evaporation chamber.

55. A method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source in an evaporation chamber;

providing a second evaporation source in a second chamber connected to the evaporation chamber wherein each of the first and second evaporation sources has a first direction and a second direction different from each other, each of the first and second evaporation sources being longer in the first direction than in the second direction;

disposing a substrate in the evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source;

evaporating a first material from said first evaporation source to deposit said first material over the substrate in the evaporation chamber;

repeatedly moving the relative position of the first evaporation source with respect to the substrate along the second direction during the step of evaporating the first material in order that a same portion of the substrate is coated with the first material at least twice;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material;

evaporating a second material from said second evaporation source to deposit said second material over the substrate in the evaporation chamber;

repeatedly moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material in order that a same portion of the substrate is coated with the second material at least twice; and

cleaning an inside of the evaporation chamber,

wherein each of the first and second evaporation sources is longer than at least one edge of the substrate.

56. The method according to claim 38 wherein said second direction is orthogonal to the first direction.

57. The method according to claim 39 wherein said second direction is orthogonal to the first direction.

58. The method according to claim 40 wherein said second direction is orthogonal to the first direction.

59. The method according to claim 37 wherein said display device is an active matrix electroluminescence display device.

60. The method according to claim 38 wherein said display device is an active matrix electroluminescence display device.

61. The method according to claim 39 wherein said display device is an active matrix electroluminescence display device.

62. The method according to claim 40 wherein said display device is an active matrix electroluminescence display device.

63. The method according to claim 20 wherein uniformity of the distribution of film thickness of a thin film in a rectangular shape, elliptical shape, or a linear shape region is maintained by using the first evaporation source during the evaporation.

64. The method according to claim 37 wherein uniformity of the distribution of film thickness of a thin film in a rectangular shape, elliptical shape, or a linear shape region is maintained by using the first evaporation source during the evaporation.

65. The method according to claim 38 wherein uniformity of the distribution of film thickness of a thin film in a rectangular shape, elliptical shape, or a linear shape region is maintained by using the first evaporation source during the evaporation.

66. The method according to claim 39 wherein uniformity of the distribution of film

thickness of a thin film in a rectangular shape, elliptical shape, or a linear shape region is maintained by using the first evaporation source during the evaporation.

67. The method according to claim 40 wherein uniformity of the distribution of film thickness of a thin film in a rectangular shape, elliptical shape, or a linear shape region is maintained by using the first evaporation source during the evaporation.

68. The method according to claim 54 wherein uniformity of the distribution of film thickness of a thin film in a rectangular shape, elliptical shape, or a linear shape region is maintained by using the first evaporation source during the evaporation.

69. The method according to claim 55 wherein uniformity of the distribution of film thickness of a thin film in a rectangular shape, elliptical shape, or a linear shape region is maintained by using the first evaporation source during the evaporation.

70. The method according to claim 20 wherein said first and second evaporation chambers are connected with each other through at least one gate.

71. The method according to claim 54 wherein at least one of the first and second materials comprises an organic material.

72. The method according to claim 55 wherein at least one of the first and second materials

comprises an organic material.

73. The method according to claim 20 wherein the mask fixed to a mask holder approaches the substrate by a magnet field.

74. The method according to claim 20 wherein each of the first and second evaporation sources has a length exceeding 300 mm along the first direction.

75. The method according to claim 37 wherein each of the first and second evaporation sources has a length exceeding 300 mm along the first direction.

76. The method according to claim 38 wherein each of the first and second evaporation sources has a length exceeding 300 mm along the first direction.

77. The method according to claim 39 wherein each of the first and second evaporation sources has a length exceeding 300 mm along the first direction.

78. The method according to claim 40 wherein each of the first and second evaporation sources has a length exceeding 300 mm along the first direction.

79. The method according to claim 54 wherein each of the first and second evaporation sources has a length exceeding 300 mm along the first direction.

80. The method according to claim 55 wherein each of the first and second evaporation sources has a length exceeding 300 mm along the first direction.

81. A method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source in a first evaporation chamber;

providing a second evaporation source in a second evaporation chamber wherein each of the first and second evaporation sources has a first direction and a second direction different from each other, each of the first and second evaporation sources being longer in the first direction than in the second direction;

disposing a substrate in the first evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source;

evaporating a first material from said first evaporation source to deposit a hole injecting layer over the substrate wherein the relative position of the substrate is repeatedly moved with respect to the first evaporation source during the evaporation of the first material in order that a same portion of the substrate is coated with the material at least twice;

transferring the substrate from the first evaporation chamber into the second evaporation chamber after the deposition of the first material; and

evaporating a second material from said second evaporation source to deposit a light emitting layer over the hole injecting layer wherein the relative position of the substrate is moved with respect to the second evaporation source during the evaporation of the second material in the second evaporation chamber.

82. The method according to claim 81 wherein the hole injecting layer comprises an organic material.

83. The method according to claim 81 wherein the light emitting layer comprises an organic material.

84. The method according to claim 81 wherein each of the first and second evaporation sources has a length exceeding 300 mm along the first direction.

85. A method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source in a first evaporation chamber;

providing a second evaporation source in a second evaporation chamber wherein each of the first and second evaporation sources has a first direction and a second direction different from each other, each of the first and second evaporation sources being longer in the first direction than in the second direction;

disposing a substrate in the first evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source;

evaporating a first material from said first evaporation source to deposit a hole injecting layer over the substrate wherein the relative position of the substrate is repeatedly moved with respect to the first evaporation source during the evaporation of the first material in order that a same portion of the substrate is coated with the material at least twice;

transferring the substrate from the first evaporation chamber into the second evaporation chamber after the deposition of the first material;

evaporating a second material from said second evaporation source to deposit a light emitting layer over the hole injecting layer wherein the relative position of the substrate is moved with respect to the second evaporation source during the evaporation of the second material;

forming a conducting film by evaporation over the light emitting layer; and

sealing the light emitting layer by sealing material without exposure to the atmosphere.

86. The method according to claim 85 wherein the hole injecting layer comprises an organic material.

87. The method according to claim 85 wherein the light emitting layer comprises an organic material.

88. The method according to claim 85 wherein each of the first and second evaporation sources has a length exceeding 300 mm along the first direction.

89. A method of manufacturing an electroluminescence display device comprising:

providing a first evaporation source and a second evaporation source in an evaporation chamber, wherein each of the first and second evaporation sources has a first direction and a second direction different from each other, each of the first and second evaporation sources being longer in

the first direction than in the second direction;

disposing a substrate in the evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source;

evaporating a first material from the first evaporation source to deposit said first material over a first pixel portion of the substrate in the evaporation chamber;

moving the relative position of the first evaporation source with respect to the substrate along the second direction during the step of evaporating the first material;

moving the mask by one pixel portion;

evaporating a second material from said second evaporation source to deposit said second material over a second pixel portion in the evaporation chamber; and

moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material.

90. The method according to claim 89 wherein at least one of the first and second materials comprises an organic material.

91. The method according to claim 89 wherein each of the first and second evaporation sources has a length exceeding 300 mm along the first direction.

92. A method of manufacturing an electroluminescence display device comprising:

providing an evaporation source in an evaporation chamber, wherein the evaporation

source has a first direction and a second direction different from each other, the evaporation source being longer in the first direction than in the second direction;

disposing a substrate in the evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the evaporation source; and

evaporating a material from the evaporation source to form a hole injecting layer over the substrate wherein the relative position of the substrate is moved with respect to the evaporation source during the evaporation of the material.

93. The method according to claim 92 wherein the hole injecting layer comprises an organic material.

94. The method according to claim 92 wherein the evaporation source has a length exceeding 300 mm along the first direction.

95. A method of manufacturing an electroluminescence display device comprising:

providing an evaporation source in an evaporation chamber, wherein the evaporation source has a first direction and a second direction different from each other, the evaporation source being longer in the first direction than in the second direction;

disposing a substrate in the evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the evaporation source;

evaporating a material from said the evaporation source to form a light emitting layer over the substrate wherein the relative position of the substrate is moved with respect to the evaporation source during the evaporation of the material.

96. The method according to claim 95 wherein the light emitting layer comprises an organic material.

97. The method according to claim 95 wherein the evaporation source has a length exceeding 300 mm along the first direction.

98. A method of manufacturing an electroluminescence display device comprising:

providing an evaporation source in an evaporation chamber, wherein the evaporation source has a first direction and a second direction different from each other, the evaporation source being longer in the first direction than in the second direction;

disposing a substrate in the evaporation chamber;

evaporating a material from said evaporation source to form a light emitting layer comprising said material over the substrate wherein the relative position of the substrate is moved with respect to the evaporation source during the evaporation of the material.

99. The method according to claim 98, further comprising steps of:

fixing a mask to the substrate wherein the mask is located between the substrate and the evaporation source.

100. The method according to claim 98 wherein the evaporation source has a length exceeding 300 mm along the first direction.

101. The method according to claim 98 wherein said electroluminescence display device is an active matrix electroluminescence display device.

102. A method according to claim 20, wherein the substrate is located above the first evaporation source,

wherein the first material is formed on a lower surface of the substrate.

103. A method according to claim 20, wherein a lower surface of the substrate is provided with thin films.

104. A method according to claim 20, wherein a lower surface of the substrate is provided with a transparent conducting film.

105. A method according to claim 37, wherein the substrate is located above the first evaporation source,

wherein the first material is formed on a lower surface of the substrate.

106. A method according to claim 37, wherein a lower surface of the substrate is provided with thin films.

107. A method according to claim 37, wherein a lower surface of the substrate is provided with a transparent conducting film.

108. A method according to claim 38, wherein the substrate is located above the first evaporation source,

wherein the first material is formed on a lower surface of the substrate.

109. A method according to claim 38, wherein a lower surface of the substrate is provided with thin films.

110. A method according to claim 38, wherein a lower surface of the substrate is provided with a transparent conducting film.

111. A method according to claim 39, wherein the substrate is located above the first evaporation source,

wherein the first material is formed on a lower surface of the substrate.

112. A method according to claim 39, wherein a lower surface of the substrate is provided with thin films.

113. A method according to claim 39, wherein a lower surface of the substrate is provided with a transparent conducting film.

114. A method according to claim 40, wherein the substrate is located above the first evaporation source,

wherein the first material is formed on a lower surface of the substrate.

115. A method according to claim 40, wherein a lower surface of the substrate is provided with thin films.

116. A method according to claim 40, a lower surface of the substrate is provided with a transparent conducting film.

117. A method according to claim 54, wherein the substrate is located above the first evaporation source,

wherein the first material is formed on a lower surface of the substrate.

118. A method according to claim 54, wherein a lower surface of the substrate is provided with thin films.

119. A method according to claim 54, wherein a lower surface of the substrate is provided with a transparent conducting film.

120. A method according to claim 55, wherein the substrate is located above the first evaporation source,

wherein the first material is formed on a lower surface of the substrate.

121. A method according to claim 55, wherein a lower surface of the substrate is provided with thin films.

122. A method according to claim 55, wherein a lower surface of the substrate is provided with a transparent conducting film.

123. A method according to claim 81, wherein the substrate is located above the first evaporation source,

wherein the first material is formed on a lower surface of the substrate.

124. A method according to claim 81, wherein a lower surface of the substrate is provided with thin films.

125. A method according to claim 81, wherein a lower surface of the substrate is provided with a transparent conducting film.

126. A method according to claim 85, wherein the substrate is located above the first evaporation source,

wherein the first material is formed on a lower surface of the substrate.

127. A method according to claim 85, wherein a lower surface of the substrate is provided with thin films.

128. A method according to claim 85, a lower surface of the substrate is provided with a transparent conducting film.

129. A method according to claim 89, wherein the substrate is located above the first evaporation source,

wherein the first material is formed on a lower surface of the substrate.

130. A method according to claim 89, wherein a lower surface of the substrate is provided with thin films.

131. A method according to claim 89, wherein a lower surface of the substrate is provided with a transparent conducting film.

132. A method according to claim 92, wherein the substrate is located above the evaporation source,

wherein the first material is formed on a lower surface of the substrate.

133. A method according to claim 92, wherein a lower surface of the substrate is provided with thin films.

134. A method according to claim 92, wherein a lower surface of the substrate is provided with a transparent conducting film.

135. A method according to claim 95, wherein the substrate is located above the evaporation source,

wherein the first material is formed on a lower surface of the substrate.

136. A method according to claim 95, wherein a lower surface of the substrate is provided with thin films.

137. A method according to claim 95, wherein a lower surface of the substrate is provided with a transparent conducting film.

138. A method according to claim 98, wherein the substrate is located above the evaporation source,

wherein the material is formed on a lower surface of the substrate.

139. A method according to claim 98, wherein a lower surface of the substrate is provided with thin films.

140. A method according to claim 98, wherein a lower surface of the substrate is provided with a transparent conducting film.

141. A method according to claim 95, wherein said material is organic.

142. A method according to claim 95, wherein said material is inorganic.

143. A method according to claim 98, wherein said material is organic.

144. A method according to claim 98, wherein said material is inorganic.

145. A method according to claim 39, wherein a gap between said first evaporation cells has a distance a and a distance between said first evaporation source and said mask is 2a to 100a.

146. A method according to claim 145, wherein said distance between said first evaporation source and said mask is 5a to 50a.

147. A method according to claim 39, wherein a gap between said second evaporation cells has a distance a and a distance between said second evaporation source and said mask is 2a to 100a.

148. A method according to claim 147, wherein said distance between said second evaporation source and said mask is 5a to 50a.

149. A method according to claim 40, wherein a gap between said first evaporation cells has a distance a and a distance between said first evaporation source and said mask is 2a to 100a.

150. A method according to claim 149, wherein said distance between said first evaporation source and said mask is 5a to 50a.

151. A method according to claim 40, wherein a gap between said second evaporation cells has a distance a and a distance between said second evaporation source and said mask is 2a to 100a.

152. A method according to claim 151, wherein said distance between said second evaporation source and said mask is 5a to 50a.

153. A method according to claim 38, wherein during evaporation each of the first and second evaporation sources moves from one end of the substrate to the other end.

154. A method according to claim 40, wherein during evaporation each of the first and second evaporation sources moves from one end of the substrate to the other end.

155. A method according to claim 55, wherein during evaporation each of the first and second evaporation sources moves from one end of the substrate to the other end.

156. A method according to claim 20, wherein said display device is a passive matrix electroluminescence display device.

157. A method according to claim 37, wherein said display device is a passive matrix

electroluminescence display device.

158. A method according to claim 38, wherein said display device is a passive matrix electroluminescence display device.

159. A method according to claim 39, wherein said display device is a passive matrix electroluminescence display device.

160. A method according to claim 40, wherein said display device is a passive matrix electroluminescence display device.

161. A method according to claim 54, wherein said display device is a passive matrix electroluminescence display device.

162. A method according to claim 55, wherein said display device is a passive matrix electroluminescence display device.

163. A method according to claim 81, wherein said display device is a passive matrix electroluminescence display device.

164. A method according to claim 85, wherein said display device is a passive matrix electroluminescence display device.

165. A method according to claim 89, wherein said display device is a passive matrix electroluminescence display device.

166. A method according to claim 92, wherein said display device is a passive matrix electroluminescence display device.

167. A method according to claim 95, wherein said display device is a passive matrix electroluminescence display device.

168. A method according to claim 98, wherein said display device is a passive matrix electroluminescence display device.

169. A method of manufacturing an electroluminescence display device comprising:

providing an evaporation source in an evaporation chamber, wherein the evaporation source has a first direction and a second direction different from each other, the evaporation source being longer in the first direction than in the second direction;

disposing a substrate in the evaporation chamber;

fixing a mask to the substrate wherein the mask is located between the substrate and the evaporation source; and

evaporating a material from said the evaporation source to form a light emitting layer over the substrate wherein the relative position of the substrate is moved with respect to the evaporation source during the evaporation of the material,

wherein the mask has at least a rectangular shaped open portion, and

wherein a longitudinal direction of open portion is perpendicular to the first direction of the evaporation source.

170. The method according to claim 169, wherein said second direction is orthogonal to the first direction.

171. The method according to claim 169 wherein said electroluminescence display device is a color display,

wherein the substrate is located above the evaporation source,

wherein a lower surface of the substrate is provided with thin films,

wherein thin films of materials for emitting different colors are formed for each pixel.

172. The method according to claim 169 wherein each of the evaporation sources has a length exceeding 300 mm along the first direction.

173. A method according to claim 169, wherein said material is organic.

174. A method according to claim 169, wherein said material is inorganic.

175. The method according to claim 169 wherein said electroluminescence display device is a passive matrix electroluminescence display device.

176. The method according to claim 169 wherein said electroluminescence display device is an active matrix electroluminescence display device.

ix. EVIDENCE APPENDIX

1. U.S. patent publication number 2002/0076847 (Yamada et al.).

2. U.S. patent publication number 2002/0179013 (Kido et al.).

3. Van Slyke et al. "Linear Source Deposition of Organic Layers for Full-Color OLED", SID 02 Digest, p. 886-889 (2002).

These references were made of record in the information disclosure statement of May 26, 2006 and were considered and entered by the Examiner with the Final Rejection of August 10, 2006.

x. RELATED PROCEEDINGS APPENDIX

None